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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/028,242	12/20/2001	Brian Christian Orr	V201-0077	2148

7590 04/03/2003

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EXAMINER

HO, HA DINH

ART UNIT	PAPER NUMBER
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3681

DATE MAILED: 04/03/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/028,242

Applicant(s)

ORR ET AL.

Examiner

Ha D. Ho

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 20 December 2001 and 07 February 2003.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-7 is/are pending in the application.
- 4a) Of the above claim(s) 7 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-6 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) 1.
- 4) ☐ Interview Summary (PTO-413) Paper No(s). _____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☒ Other: *Exhibit 1*.

DETAILED ACTION

1. This is the first Office Action on the merits of Application No. 10/028,242 filed on 12/20/01.
2. Receipt is acknowledged of the Amendment filed on 02/07/03. Claims 1, 3, 4 and 6 have been amended accordingly. Claims 1-7 are currently pending.

Election/Restrictions

3. Applicant's election of the invention of claims 1-6 in Paper No. 6 is acknowledged. Because applicant did not distinctly and specifically point out the supposed errors in the restriction requirement, the election has been treated as an election without traverse (MPEP § 818.03(a)).
4. Claim 7 is withdrawn from further consideration pursuant to 37 CFR 1.142(b) as being drawn to a nonelected invention, there being no allowable generic or linking claim. Election was made **without** traverse in Paper No. 6.

Specification

5. Applicant is reminded of the proper language and format for an abstract of the disclosure.

The abstract should be in narrative form and generally limited to a single paragraph on a separate sheet within the range of 50 to 150 words. It is important that the abstract not exceed 150 words in length since the space provided for the abstract on the computer tape used by the printer is limited. The form and legal phraseology often used in patent claims, such as "means" and "said," should be avoided. The abstract should describe the disclosure sufficiently to assist readers in deciding whether there is a need for consulting the full patent text for details.

The language should be clear and concise and should not repeat information given in the title. It should avoid using phrases which can be implied, such as, "The disclosure concerns," "The disclosure defined by this invention," "The disclosure describes," etc.

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6. The abstract of the disclosure is objected to because the length of the abstract is less than 50 words. Correction is required. See MPEP § 608.01(b).

7. The disclosure is objected to because of the following informalities: on page 3, line 4, "FIG. 1" should be changed to --FIG. 3--.

Appropriate correction is required.

Claim Objections

8. Claims 1, 4 and 6 are objected to because of the following informalities:

claim 1, line 2, "," (first occurrence) should be deleted,

claim 4, line 5, "," should be deleted, and

claim 6, line 15, "a" should be changed to --the--.

Appropriate correction is required.

Claim Rejections - 35 USC § 112

9. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

10. Claim 6 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claim 6 recites the limitation "said side gear receiving part-spherical regions" in lines 12 and 14. There is insufficient antecedent basis for this limitation in the claim.

Claim Rejections - 35 USC § 102

11. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

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A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

12. Claims 1 and 3-5 are rejected under 35 U.S.C. 102(b) as being anticipated by Hokusho et al. (US 4,541,306).

Regarding claim 1, Hokusho et al'306 shows a differential casing (see Fig. 2) comprising a chamber (16) having an axle centerline (40), a centerpoint (21), and defined by at least one spherical surface (A) (see Exhibit 1) and at least one opposing surface (B) (see Exhibit 1), wherein a centerpoint (30) of said at least one spherical surface (A) is substantially collinear with said axle centerline (40) and is offset from the centerpoint (21) of said chamber by an offset distance along said axle centerline in a direction away from said opposing surface (B).

Regarding claim 3, Hokusho et al'306 shows an automotive differential mechanism (see Fig. 2) comprising a first side gear (right 28) having a spherical centerpoint (30); a second side gear (left 28) having a surface (C) (see Exhibit 1); and a differential chamber (16) formed by offsetting the spherical centerpoint (30) of said first side gear away from the surface of said second side gear (see Exhibit 1).

Regarding claim 4, Hokusho et al'306 shows an automotive differential mechanism (see Fig. 2) comprising a pinion shaft (20); first and second pinion gears (24); a first side gear (right 28) having a first side gear outer radius (R); a second side gear (left 28) having a second side gear outer radius (R); and a differential casing having an axle centerline (40), a casing centerpoint (21), a first axle shaft port (right 12b'), a second axle shaft port (left 12b'), a first inner radius (i.e., the radius coincides with the radius R of the right side gear 28), a first radius center point (left 30), a second inner radius (i.e., the radius coincides with the radius R of the left

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side gear 28) and a second radius center point (right 30), wherein said second radius center point (right 30) is substantially collinear with said axle centerline 940) and offset from said casing centerpoint (21) an offset distance along said axle centerline in a direction away from said first inner radius (i.e., the radius coincides with the radius R of the right side gear 28). Regarding claim 5, wherein said first and second side gears (28) do not have alignment shoulders.

Claim Rejections - 35 USC § 103

13. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

14. Claim 2 is rejected under 35 U.S.C. 103(a) as being unpatentable over Hokuscho et al. (US 4,541,306). Hokuscho et al'306 shows the radius (R) of said at least one spherical surface (A) much larger than the offset distance between the centerpoint and the centerpoint (30) of the at least one spherical surface (A). Hokuscho et al'306 leaves it up to one having ordinary skill in the art to come up with a ratio of the radius of the at least one spherical surface to the offset distance. It would have been obvious to one of ordinary skill in the art at the time the invention was made to select the ratio of the radius of the at least one spherical surface to the offset distance be at, since such a selection would have involved a mere change in the size of a component, e.g., how large the differential chamber is. A change in size is generally recognized as being within the level of ordinary skill in the art. In re Rose, 105 USPQ 237 (CCPA 1955).

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Allowable Subject Matter

15. Claim 6 would be allowable if rewritten or amended to overcome the rejection(s) under 35 U.S.C. 112, second paragraph, set forth in this Office action.

Cited Prior Art

16. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure: Blomberg'226, Glaze et al.'578, Sander et al.'777, Nishiji'064, Victoria et al.'152, Hikita et al.'949, Ito et al.'438, and Kappel'728 which each shows an automotive differential mechanism having a casing defined by spherical surfaces.

Communication

17. Submission of your response by facsimile transmission is encouraged. Group 3600's facsimile number is (703) 305-3597. Recognizing the fact that reducing cycle time in the processing and examination of patent applications will effectively increase a patent's term, it is to your benefit to submit responses by facsimile transmission whenever permissible. Such submission will place the response directly in our examining group's hands and will eliminate Post Office processing and delivery time as well as the PTO's mail room processing and delivery time. For a complete list of correspondence not permitted by facsimile transmission, see M.P.E.P. 502.01. In general, most responses and/or amendments not requiring a fee, as well as those requiring a fee but charging such fee to a deposit account, can be submitted by facsimile transmission. Responses requiring a fee which applicant is paying by check should not be submitting by facsimile transmission separately from the check. Responses submitted by facsimile transmission should include a Certificate of Transmission (M.P.E.P.. 512). The following is an example of the format the certification might take:

I hereby certify that this correspondence is being facsimile transmitted to
the Patent and Trademark Office (Fax No. (703) 305-3597) on _____
(Date)

Typed or printed name of person signing this certificate:

(Signature)

If your response is submitted by facsimile transmission, you are hereby reminded that the original should be retained as evidence of authenticity (37 CFR 1.4 and M.P.E.P.. 502.02). Please do not separately mail the original or another copy unless required by the Patent and Trademark Office. Submission of the original response or a follow-up copy of the response after

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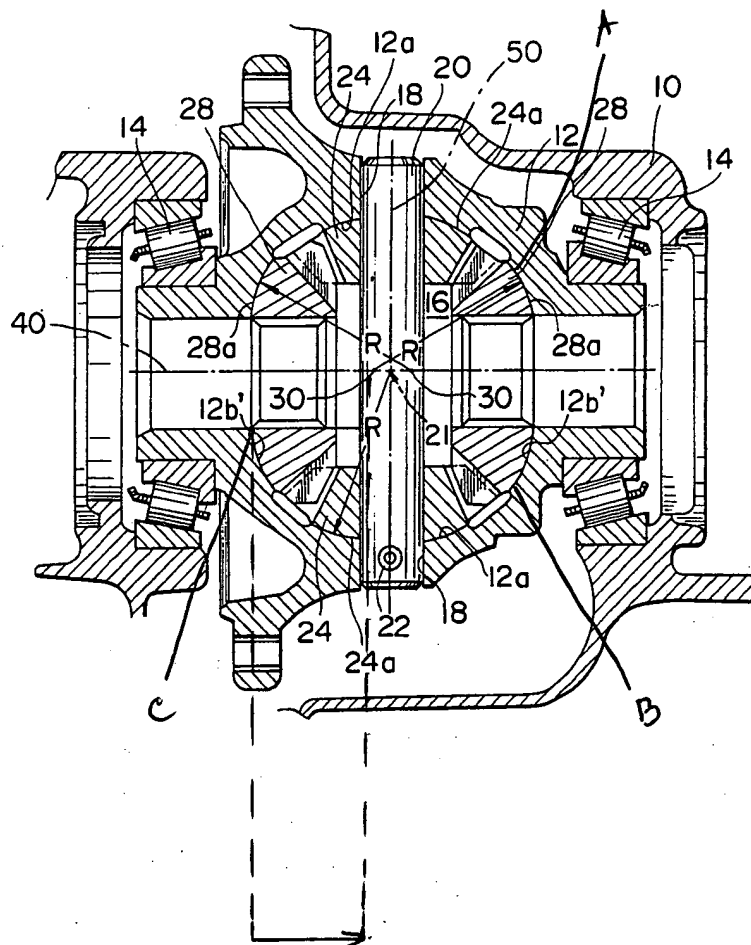
your response has been transmitted by facsimile will only cause further unnecessary delays in the processing of your application; duplicate responses where fees are charged to a deposit account may result in those fees being charged twice.

18. Any inquiry concerning this communication or earlier communication from the examiner should be directed to Examiner Ho whose telephone number is (703) 305-0738. The examiner can normally be reached on Monday-Friday from 7:30 A.M. to 5:00 P.M. Eastern Standard Time. If attempts to reach the examiner by phone are unsuccessful, the examiner's supervisor, Mr. Charles Marmor, can be reached at (703) 308-0830. Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the Group receptionist whose telephone number is (703) 308-2168.

Ha Ho 3/26/03

Ha Ho
Patent Examiner
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FIG. 2



OFFSETTING AWAY FROM THE SIDE GEAR SURFACE

EXHIBIT 1